Docket No.: CV-E-006-PUS

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANTS: Johnsson et al. EXAMINER: Berch

SERIAL NO.: 10/591,162 GROUP: 1624

FILED: October 3, 2006

FOR: Specific Substrates for 0^6-Alkylguanine-DNA Alkyltransferase

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

VIA EFS WEB FILING: WWW.USPTO.GOV on February 25, 2011

DECLARATION UNDER 37 C.F.R. §1.132

I hereby declare that:

1. I am Dr. Ivan Correa and a staff scientist at New England Biolabs Inc.. My resume is attached.

2. I declare that the CN (nitrile) in the Damoiseaux reference cited by the Examiner in the office action dated 6/16/10 is neither a chromophore or a fluorophore.

3. An art accepted definition of chromophore is a chemical group that absorbs light at a specific frequency and so imparts color to a molecule (http://merriam-webstercollegiate.com/medical/chromophore).

4. Color arises when a molecule absorbs light in the visible spectrum between about 390-750nm wavelength.

5. NITRILES are organic compounds containing the -CN radical. Nitriles do not absorb light above about 200 nm [Francis A. Carey, Organic Chemistry, 4 ed., page 817] [http://www.mhhe.com/physsci/chemistry/carey/student/olc/ch20spectroscopicanalysis.html]. Nitriles do not impart detectable color to a molecule between 390 and 750nm wavelength.

6. Therefore nitriles cannot be considered as a chromophore label. Also nitriles are not fluorophores.

7. I further declare under penalty of perjury pursuant to laws of the United States of America the foregoing is true and correct and the Declaration was executed by me on:

Ivan Correa

2/23/2011

Ivan Reis Corrêa Jr., PhD

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Curriculum Vitae

Professional Appointments:

2009 – Present	**Staff Scientist** New England Biolabs Chemical Biology Division Ipswich, MA, USA
2008 –2009	**Staff Scientist** Covalys Biosciences AG Witterswil, SWITZERLAND
2006 –2008	**Postdoctoral Research Scientist** Swiss Federal Institute of Technology (EPFL) Institute of Chemical Sciences and Engineering Lausanne, SWITZERLAND Advisor: Prof. Dr. Kai Johnsson
2003 –2006	**Postdoctoral Research Scientist** Max Planck Institute of Molecular Physiology Department of Chemical Biology Dortmund, GERMANY Advisor: Prof. Dr. Herbert Waldmann

Education:

1999 –2003	**Doctor of Sciences (PhD)** State University of Campinas, Institute of Chemistry Campinas, SP, BRAZIL Thesis: Total Synthesis and Structural Elucidation of (–)-Delactonmycin Advisor: Prof. Dr. Ronaldo A. Pilli
1996 –1998	**Master of Chemistry (MSc)** State University of Campinas, Institute of Chemistry Campinas, SP, BRAZIL Thesis: Asymmetric Synthesis of β-hydroxy-α-aminoacids and derivatives via Microbiologic Reduction using Baker's Yeast Advisor: Prof. Dr. Paulo J. S. Moran

1992 –1996 **Bachelor of Chemistry (BSc)**
State University of Campinas,
Institute of Chemistry
Campinas, SP, BRAZIL

Languages:

Mother Tongue: Portuguese
Proficiency: English
Intermediate: French, Spanish
Basic: German

Publications:

10. Bannwarth*, M.; **Corrêa*, I. R., Jr.;** Fellay, C.; Aebischer, A.; Sztretye, M.; Pouvreau, S.; Royer, L.; Ríos, E.; Johnsson, K. (2009): Indo-1 Derivatives for Local Calcium Sensing. *ACS Chemical Biology* 2009, 4, 179-190. (Cover picture: *ACS Chemical Biology* 2009, 4, Issue 3). *These authors awarded equal first place in this work.

9. Gautier, A.; Juillerat, A.; Heinis, C.; **Corrêa, I. R., Jr.;** Kindermann, M.; Beaufils, F.; Johnsson, K. (2008): An Engineered Protein Tag for Multiprotein Labeling in Living Cells. *Chemistry and Biology* 15, 128-136.

8. Wehner, F.; Nören-Müller, A.; Müller, O.; **Corrêa, I. R., Jr.;** Giannis, A.; Waldmann H. (2008): Indoloquinolizidine Derivatives as Novel and Potent Apoptosis Inducers and Cell-Cycle Blockers. *ChemBioChem* 9, 401-405 (Cover picture: *ChemBioChem* 2008, 9, 337).

7. **Corrêa, I. R., Jr.;** Nören-Müller, A.; Ambrosi, H.-D.; Jakupovic, S.; Saxena, K.; Schwalbe, H. J.; Kaiser, M.; Waldmann H. (2007): Identification of inhibitors for Mycobacterial Protein Tyrosine Phosphatase B (MptpB) by Biology-Oriented Synthesis (BIOS). *Chemistry - An Asian Journal* 2, 1109-1126.

6. Nören-Müller, A.; **Corrêa, I. R., Jr.;** Prinz, H.; Rosenbaum, C.; Saxena, K.; Schwalbe, H. J.; Vestweber, D.; Cagna, G.; Schunk, S.; Schwarz, O.; Schiewe, H.; Waldmann H. (2006): Discovery of protein phosphatase inhibitor classes by biology-oriented synthesis. *Proceedings of the National Academy of Sciences of the United States of America* 103, 10606-10611.

5. Pilli, R. A.; **Corrêa, I. R., Jr.;** Maldaner, A. O., Rosso, G. B. (2005): Total Synthesis and Structural Elucidation of Natural Products: (–)-Delactonmycin, (+)-Plumerinine, and (–)-Parvistemoamide. *Pure and Applied Chemistry* 77, 1153-1160.

4. **Corrêa, I. R., Jr.;** Pilli, R. A. (2003): Total Synthesis and Structural Elucidation of (–)-Delactonmycin. *Angewandte Chemie International Edition* 42, 3017-3020.

3. **Corrêa, I. R., Jr.;** Pilli, R. A. (2003): Asymmetric Catalytic Aldol Reactions. *Química Nova* 26, 531-541 (in Portuguese).

2. **Corrêa, I. R., Jr.;** Moran, P. J. S. (1999): Diastereoselective Reduction of *E* and *Z* α-alkoxyimino-β-ketoesters by Sodium Borohydride. *Tetrahedron* 55, 14221-14232.

1. Patrocínio, A. F.; **Corrêa, I. R., Jr.;** Moran, P. J. S. (1999): Enantioselective synthesis of α-hydroxysilanes by bioreduction of aroyltrimethylsilanes. *Journal of Chemical Society, Perkin Transactions 1*, 3133-3137.

Poster Presentations and Abstracts:

25. Sun, X.; **Corrêa, I. R., Jr.;** Howard, A.; Sun, L.; Zhang, A.; Noren, C.; Xu, M.-Q. (2010): Real-time Imaging and Analysis of Receptor Trafficking in Living Mammalian Cells Using a Fast Version of SNAP-tag and a Fluorogenic Probe. 50th Annual Meeting of the American Society for Cell Biology at Philadelphia, PA, USA. December 2010.

24. **Corrêa, I. R., Jr.;** Sun, X.; Howard, A.; Labarthe, N.; Sun, L.; Zhang, A.; Provost, C.; Baker, B.; Buswell, J.; Noren, C.; Xu, M.-Q. (2010): Development of Fluorogenic SNAP-tag Substrates for Cellular Imaging and Analysis. 50th Annual Meeting of the American Society for Cell Biology at Philadelphia, PA, USA. December 2010.

23. Gong, H.; Kovar, J.; Zhang, A.; **Corrêa, I. R., Jr.;** Xu, M.-Q.; Olive, M. (2010): Development of a near-infrared fluorescence reporter system using the SNAP-tag technology. Gordon Research Conference on Lasers in Medicine and Biology at Holderness, NH, USA. July, 2010.

22. **Corrêa, I. R., Jr.;** Labarthe, N.; Sun, L.; Sun, X.; Zhang, A.; Provost, C.; Baker, B.; Buswell, J.; Xu, M.-Q.; Noren, C. (2010): Synthesis and Characterization of SNAP-tag Fluorogenic Probes for Cellular Imaging. Gordon Research Conference in Bioorganic Chemistry at Andover, NH, USA. June, 2010.

21. Zhang, A.; Sun, X.; Kovar, J.; Gong, H.; Olive, M.; **Corrêa, I. R., Jr.;** Russello, S.; Xu, Noren, C.; M.-Q.; (2010): Study of Mouse Tumor Models with an IRDye 800CW SNAP-tag Imaging Probe. 101th Annual Meeting of the American Association for Cancer Research at Washington, DC, USA. April, 2010.

20. **Corrêa, I. R., Jr.;** Sun, L.; Labarthe, N.; Zhang, A.; Gosh, I.; Provost, C.; Baker, B.; Buswell, J.; Russello, S.; Xu, M.-Q.; Noren, C. (2010): Study of Protein Dynamics in Living Cells Using the SNAP-tag Technology. 54th Annual Meeting of the Biophysical Society at San Francisco, CA, USA. February 2010.

19. Sun, L.; Gosh, I.; Zhang, A.; **Corrêa, I. R., Jr.;** Labarthe, N.; Buswell, J.; Benner, J.; Provost, C.; Russello, S.; Davis, T.; Noren, C.; M.-Q. Xu (2009): Improved SNAP- and CLIP-tags with Fast Substrate Reactive Kinetics for Fluorescent Imaging in Live Cells. 49th Annual Meeting of the American Society for Cell Biology at San Diego, CA, USA. December 2009.

18. Xu, M.-Q.; Zhang, A.; Sun, L.; Kovar, J.; Gong, H.; Olive, D. M.; **Corrêa, I. R., Jr.;** Russello, S.; Noren, C. (2009): Study of Mouse Tumor Models with an IRDye 800CW SNAP-tag. 49th Annual Meeting of the American Society for Cell Biology at San Diego, CA, USA. December 2009.

17. Kamiya, M.; **Corrêa, I. R., Jr.;** Johnsson K. (2009): Development of a new benzylguanine derivative of calcium sensor based on bodipy-scaffold. 2nd Switzerland-Japan Biomolecular Chemistry Symposium (SJBCS) at Tokyo, JAPAN. September 2009.

16. **Corrêa, I. R., Jr.;** Sun, L.; Zhang, A.; Ghosh, I.; Masharina, A.; Provost, C.; Desmond, B.; Buswell, J.; Russello, S.; Davis, T.; Xu, M.-Q.; Noren, C. (2009): SNAP-tag and CLIP-tag Self-labeling Technologies for Studying Protein Dynamics in Living Cells. Gordon Research Conference in Bioorganic Chemistry at Andover, NH, USA. June, 2009.

15. Sztretye, M.; Pouvreau, S.; Bannwarth, M.; **Corrêa, I. R., Jr.;** Fellay, C.; Aebischer, A.; Royer, L.; Yi, J.; Zhou, J.; Johnsson, K.; Ríos, E. (2009): Indo-1 Hybrid Biosensors For Calcium Monitoring In Cellular Organelles. 53rd Annual Meeting of the Biophysical Society, Boston, MA, USA. Biophysical Journal, Volume 96, Issue 3, Supplement 1, February 2009, Page 541a.

14. **Corrêa, I. R., Jr.;** Bannwarth, M.; Fellay, C.; Sztretye, M.; Pouvreau, S.; Royer, L.; Ríos, E.; Johnsson, K. (2008): Indo-1 Benzylguanine Derivatives for Local Calcium Sensing. EMBL Conference on Chemical Biology at Heidelberg, GERMANY. October 2008.

13. **Corrêa, I. R., Jr.;** Bannwarth, M.; Ruggiu, A.; Johnsson K. (2008): Synthesis and applications of O^6-benzylguanine-BAPTA probes for studying calcium signaling in living cells. 9th Tetrahedron Symposium at Berkeley, CA, USA. July 2008.

12. **Corrêa, I. R., Jr.;** Bannwarth, M.; Ruggiu, A.; Johnsson K. (2007): Synthesis O^6-alkylguanine-BAPTA fluorescent sensors for determination of calcium concentrations in living cells. Fall Meeting of the Swiss Chemical Society at Lausanne, SWITZERLAND. September 2007. *Chimia*, 7-8, 478, OC-247 (2007).

11. **Corrêa, I. R., Jr.;** Nören-Müller, A.; Ambrosi, H.; Kaiser, M.; Prinz, H.; Jakupovic, S.; Waldmann H. (2007): Identification of inhibitors for Mycobacterial Protein Tyrosine Phosphatase B (MptpB) by Biology-Oriented Synthesis (BIOS). 8th Tetrahedron Symposium at Berlin, GERMANY. June 2007.

10. **Corrêa, I. R., Jr.;** Bannwarth, M.; Ruggiu, A.; Johnsson K. (2007): O^6-Benzylguanine-BAPTA fluorescent indicators for local calcium sensing in living cells. 1st Japanese-Swiss Symposium on Chemical Biology (JSCB) at Lausanne, SWITZERLAND. June 2007.

9. **Corrêa, I. R., Jr.;** Pilli, R. A. (2003): First Total Synthesis and Structural Elucidation of (–)-Delactonmycin. 10Th Brazilian Meeting on Organic Synthesis at São Pedro, BRAZIL. August 2003.

8. **Corrêa, I. R., Jr.;** Pilli, R. A. (2002): Synthesis of the C5-C16 Fragment of Delactonmycin, a Potent Cytotoxic Polyketide from Streptomyces sp. 23rd International Symposium on the Chemistry of Natural Products at Florence, ITALY. July 2002.

7. **Corrêa, I. R., Jr.;** Pilli, R. A. (2001): Asymmetric Synthesis of the C7-C16 Fragment of Delactonmycin. 9Th Brazilian Meeting on Organic Synthesis at Curitiba, BRAZIL. August 2001.

6. **Corrêa, I. R., Jr.;** Pilli, R. A. (2001): Felkin Addition of Tin(II) Enolates to Chiral Aldehydes. Synthesis of the C1-C8 Fragment of Calistatin A. 24Th Annual Meeting of the Brazilian Chemical Society at Poços de Caldas, BRAZIL. May 2001 (in Portuguese).

5. **Corrêa, I. R., Jr.;** Moran, P. J. S. (1999): Determination of the *E/Z* Configuration of α-oxyimino e α-alkyloxymino β-keto esters by ^{13}C NMR and IR. 22Th Annual Meeting of the Brazilian Chemical Society at Poços de Caldas, BRAZIL. May 1999 (in Portuguese).

4. **Corrêa, I. R., Jr.;** Moran, P. J. S.; Rodrigues, J. A. R. (1998): Enantioselective Reduction of (*Z*)- and (*E*)-3-Akyl-2-Methoxyimino-3-oxoprpionates by Immobilized Baker Yeast. 21Th Annual Meeting of the Brazilian Chemical Society at Poços de Caldas, BRAZIL. May 1998 (in Portuguese).

3. **Corrêa, I. R., Jr.;** Moran, P. J. S. (1998): Reduction of (*Z*)- and (*E*)-2-(*O*-Akyloximes)-3-oxo-Alkanoates by Sodium Borohydride. 8Th Brazilian Meeting on Organic Synthesis at São Pedro, BRAZIL. September 1998.

2. Patrocínio, A. F.; **Corrêa, I. R., Jr.;** Moran, P. J. S. (1998): Asymmetric Reduction of Acylsilanes Mediated by Baker's Yeast. 8Th Brazilian Meeting on Organic Synthesis at São Pedro, BRAZIL. September 1998.

1. **Corrêa, I. R., Jr.;** Moran, P. J. S.; Rodrigues, J. A. R. (1997): Studies to the Microbiologic Reduction of O-alkyloximes with Immobilized Baker Yeast. 20Th Annual Meeting of the Brazilian Chemical Society at Poços de Caldas, BRAZIL. May 1997 (in Portuguese).

Invited Seminars:

10. **Massachusetts General Hospital**, Wellman Center of Photomedicine, Boston, MA, USA: SNAP-tag Technology: New Approaches for Studying Protein Dynamics in Living Cells. November 2010.

10. **Yale School of Medicine**, Department of Cell Biology, New Haven, CT, USA: Development of SNAP-tag Technologies for the Study of Protein Dynamics. July 2010.

9. **49th Annual Meeting of the American Society for Cell Biology**, San Diego, CA, USA: Future Developments and Applications of SNAP-tag Technology. December 2009.

8. **New England Biolabs**, Ipswich, MA, USA: Development of chemical probes for covalent labeling of fusion proteins in living cells. July 2008:

7. **Swiss Chemical Society, Fall Meeting 2007**, Lausanne, SWITZERLAND: Synthesis O^6-alkylguanine-BAPTA fluorescent sensors for determination of calcium concentrations in living cells. September 2007.

6. **Swiss Federal Institute of Technology (EPFL)**, *Institute of Chemical Sciences and Engineering*, Lausanne, SWITZERLAND: Synthesis, Structural Elucidation and Biological Evaluation of Natural Products and analogues thereof. October 2005.

5. **AnalytiCon Discovery GmbH**, Potsdam, GERMANY: Combinatorial Synthesis and Biological Investigation of Compound Libraries Embodying Indole-Based Privileged Structures. March 2005.

4. **Alexander von Humboldt Foundation,** Introductory Meeting, Bremen, GERMANY: Combinatorial Synthesis and Biological Investigation of Compound Libraries Embodying Indole-Based Structures. April 2004.

3. **Max Planck Institute of Molecular Physiology**, Department of Chemical Biology, Dortmund, GERMANY: First Total Synthesis and Structural Elucidation of (–)-Delactonmycin. January 2004.

2. **10Th Brazilian Meeting on Organic Synthesis**, São Pedro-SP, BRAZIL: First Total Synthesis and Structural Elucidation of (–)-Delactonmycin. August 2003.

1. **State University of São Paulo**, Department of Fundamental Chemistry, São Paulo-SP, BRAZIL: Total Synthesis and Structural Elucidation of (–)-Delactonmycin. August 2003.

Awards and Fellowships

2008 **Cell Press** - Chemistry & Biology Poster Prize. EMBL Conference on Chemical Biology, Heidelberg, GERMANY.

2004 **Alexander von Humboldt Foundation** - Humboldt Research Fellowship

1999 **FAPESP** - State of São Paulo Research Foundation Doctoral Fellowship

1996 **FAPESP** - State of São Paulo Research Foundation Masters Fellowship

1995 **FAPESP** - State of São Paulo Research Foundation Scientific Initiation Fellowship

1994 **CNPq** - National Council for Scientific and Technological Development Scientific Initiation Fellowship

Teaching Experience:

March 2002 – July 2002 **Assistant Professor** (Lecturer Internship Program)
State University of Campinas,
Institute of Chemistry
Campinas, SP, BRAZIL
Course: Experimental Organic Chemistry II (QO-620)